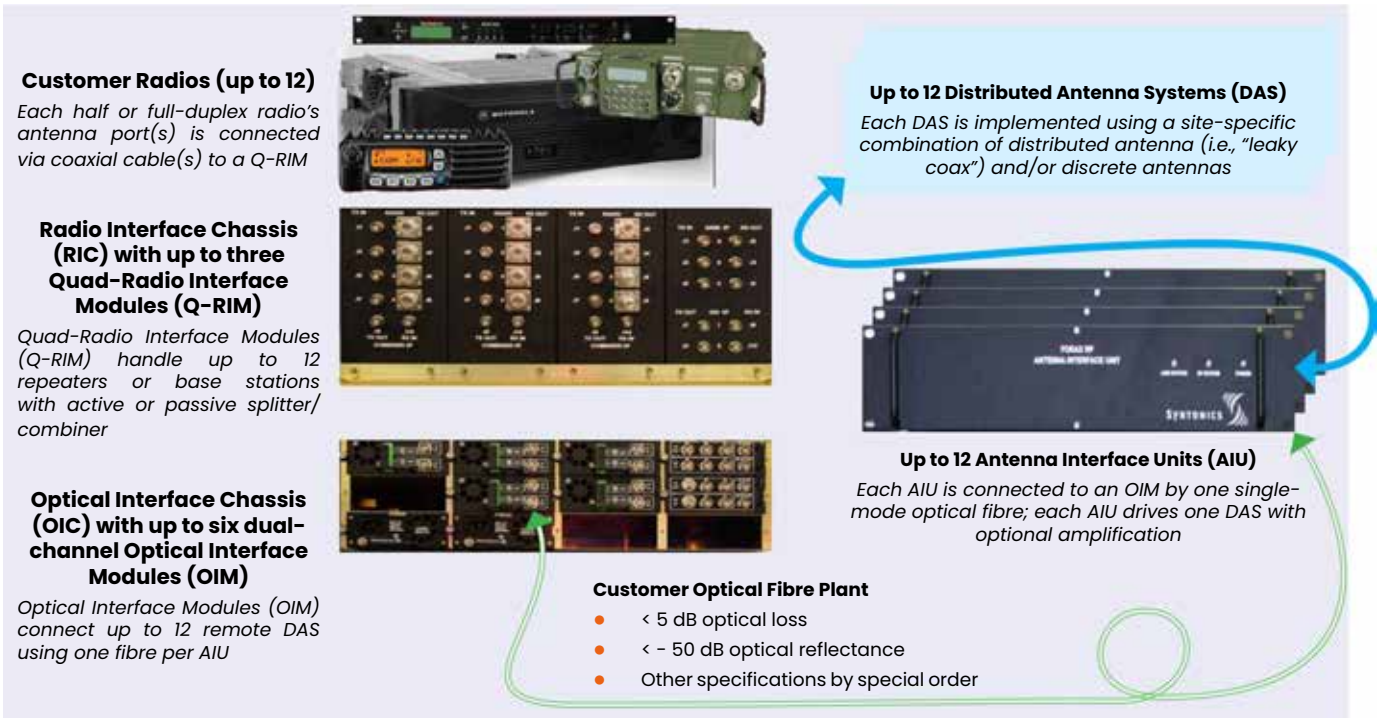
FORAX-DAS

Distributed antenna system

RF over Fibre

FORAX-DAS ("distributed antenna system") connects multiple repeaters or base stations to distant distributed antenna systems (DAS). FORAX-DAS offers a high performance alternative to conventional systems using bi-directional amplifiers, affording great flexibility in antenna location plus opto-isolation for all the user's radios. Multiple DAS can be located up to 10 km from the repeaters/base station.

A FORAX-DAS RF-over-fibre system can connect up to 12 radios to as many as 12 DAS. Each radio is connected to each DAS using up to three Quad-Radio Interface Modules (Q-RIM), up to six dual-channel Optical Interface Modules (OIM), and up to 12 Antenna Interface Modules (AIM). At the radio site, Q-RIMs are mounted in a 19-inch rack mount chassis and connected by short coaxial cables to each radio's antenna port. The OIMs are also supplied in a 19-in rack mount chassis. At the antenna site, AIMs are supplied in form factors including 19-inch rack mount chassis, wall or ceiling mounted enclosures, or NEMA enclosures, connected to each DAS with coaxial cable(s).



FORAX-DAS functions as a long, loss-free link between the radio and the antenna. System limitations and installation difficulties associated with coaxial cable are overcome by the simplicity and performance of RF-over-fibre connections. FORAX-DAS provides:

Feature	Benefit
Long Connections	• Radio and its antenna can be located up to 10 km apart using single mode fibre
EMP/EMI Immunity	• Lightning, electromagnetic pulses, or RF interference cannot propagate over, or influence the signals on, optical fibre cables • Radio equipment is opto-isolated from antenna
Easy Routing	• RF signals are carried on lightweight, flexible, rugged, optical cables • Multiple radios can be carried on a single fibre optic cable
All Frequencies, All Modulations	• Geographic diversity in RF signal routing becomes easy • FORAX-DAS modules can cover 30-2000 MHz • FORAX-DAS modules handle all modulations including P25 LMR/Public Safety, VHF/UHF LOS, Wireless Intercom, AM, FM, SINCGARS, SRW, WNW, ANW2, EPLRS, UHF TACSAT, GPS

RF Link Parameters

Link Gain	Varies with application
Noise Figure (NF)	+ 9 dB typical
1 dB Compression Point	- 20 dBm
Third Order Intercept Point (IIP3)	- 10 dBm (with 30 m of fibre)
Spur Free Dynamic Range (SFDR)	+ 103 dBm/Hz (with 30 m of fibre)

Product Characteristics

	Radio Interface Unit (RIU)	**Antenna Interface Unit (AIU)**
Half Duplex RX/TX Switching Time *Option: Full Duplex or Simplex Link*	Supports all public safety trunking and tactical radio systems	
Optical Loss Budget	< 5 dB (Higher optical loss budgets available)	
Nominal Input Power	+ 27 dBm (other values available)	
Input P1 dB	+ 38 dBm (other values available)	
Input 2 Tone IP3	+ 48 dBm (other values available)	
AIM TX Power into DAS		Varies with application
Minimal Signal (50 dB C/No @ Radio)		- 80 dBm typical
Receive Input P1 dB		+ 7 dBm
Receive Input 2 Tone IP3		+ 17 dBm
Minimum Antenna Return Loss		15 dB
User Interface	Monitor LEDs: • Laser operation (end-to-end) • TX RF operation • Command link fault	Monitor LEDs: • Power
Packaging *Option: Weather-tight enclosures with tactical fibre optic cables for field use in all environments*	• Up to 12 radios and up to 12 DAS • Up to three (3) Quad-RIMs in RIC • Up to six (6) OIMs in OIC with two hot swappable, redundant power supplies • All RIC/OIC intra and inter-chassis cables supplied	19-in Rack-mount, wall/pole/pad-mount, or NEMA enclosures available
Installation Notes	User's facility supplies AC power and fibre optic (FO) connection from OIC to AIU	User's facility supplies AC power and fibre optic (FO) connection from RIU to AIU
Fibre Optic Connector Type	SC/APC (other types available)	
RF Connector Type	N-type female (other types available) for radio and antenna links	
Power	Universal AC: 90-250 VAC, 50-400 Hz, single phase; UPS option	
Operating Temperature	- 10°C to + 60°C	- 10°C to + 60°C
Storage Temperature	- 40°C to + 80°C	- 40°C to + 80°C

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